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Frozen beetle treats are environmentally friendly



As native *plant* enthusiasts, when we think about invasive exotics, we tend to think about invasive exotic *plants*. Of course, animals mount invasions, too, and exotic animals contribute to the skewed nature of habitats altered by the impact of human beings. Pigeons, starlings, house sparrows, and urban rats come readily to mind. In addition, many insect pests have come to us from other hemispheres.

At my rural household, the most vexatious insect pest has got to be the ubiquitous Japanese beetle. Native to Japan, these pests have infested most of eastern North America, with isolated infestations appearing in some western states. One reason that Japanese beetles are so bad is that they deliver a double-whammy: the larvae (grubs) consume roots and are particularly destructive of turf and pasture grasses while the adults consume leaves and flowers of a wide variety of plants, leaving behind skeletonized versions of the plant parts consumed.

A USDA-APHIS website (http://www.pueblo.gsa.gov/cic_text/housing/japanese-beetle/jbeetle.html) estimates the annual economic impact of Japanese beetle adults at \$460 million per year, with the grubs being responsible for an additional \$234 million each and every year. In my yard, I find particularly heavy infestations on raspberries, roses, oriental persimmon, okra, and our native evening primrose (*Oenothera biennis*). To a lesser extent, I also find these beetles on corn silks and tassels. Other readers, no doubt, will have their own list of favored but susceptible species, both native and cultivated.

Left alone, the beetles can be devastating to these plants. The USDA-APHIS web site outlines various insecticide-based and biological control strategies for managing Japanese beetle infestations. The information found therein strikes me as reasonably sound. However, the USDA site is silent on poultry-based approaches. The remainder of this installment relates how I have recruited

my chickens into the good fight against the Japanese beetle menace.

It does not take a very acute observer to notice that chickens relish bugs, and by "bug" I am using a vernacular meaning, loosely definable as any invertebrate small enough to fit inside a chicken's beak. It did not take me long to determine by experiment that chickens find Japanese beetles eminently palatable. As mentioned above, there is no shortage of Japanese beetles in my yard during their season, pretty much late June and most of July. The challenge becomes how to get the beetles from the garden plants that they so voraciously devour to the chickens who are eager to do the same to the beetles.

I suppose most gardeners are familiar with the challenges of hand picking Japanese beetles from plants. One can accumulate only a few live beetles in a tightly closed fist before the beetles begin crawling around in a most unsettling manner, eventually forcing their way between one's fingers, or having been warmed to human body temperature, quickly escaping and taking flight as the gardener tries to add just one more beetle to the handful. And then, if the urge to let go of the handful of squirming, scratchy, beetle-legs has been resisted, what to do with them? If tossed in the chicken yard, most will escape before the chickens can get them. Of course, one could improve the odds in favor of the chickens by manually crushing the beetles, but this is not a strategy for the squeamish. Further, the beetles are so abundant and so widespread across my property that it quickly becomes very tedious to ferry them to chicken yards one handful at a time. There has to be a better way.

One better way occurred to me while noticing some aspects of Japanese beetle flight behavior, observations that, again, will be familiar to any gardener who has attempted manual capture of these critters. When temperatures are warm, as it usually is around midday during beetle season, the slightest disturbance sends the beetles rapidly into flight. However,

when it is cool, as in the early morning or near dusk, the beetles are sluggish. They are much easier to capture when it is cool. Further, if the quarry is missed, rather than taking off by wing, cool beetles drop like stones, and once on the ground, they seek shelter under leaves or in the nooks and crannies of the soil.

This range in behavior is easily explained as a consequence of the beetle's cold-blooded nature. When ambient temperatures are warm, the beetles are warm and they are capable of rapid movements, including wing beats fast enough for flight and when it is cold the beetles are cold and they can't do anything quickly at all. So, technically, they are poikilothermic, but let's not be too esoteric about catching bugs . . . or coleopterans for that matter. One day while pondering the cold-blooded nature of Japanese beetles, I made a cold-blooded calculation of my own: I could use ice cubes to temporarily cold-trap the beetles and thus overcome the problem of flight risk while gathering beetles to feed them to chickens.

To summarize, my preferred method of managing Japanese beetle infestations is as follows. First, I work in the cool of the morning or evening near dusk which, of course, are already favorite times for a stroll through the yard. Before starting my rounds, I put about two inches of ice cubes in any convenient wide-mouthed container. Something with a 10-inch opening is about right, large enough to provide a good target for falling beetles and small enough to manipulate and position around plant stems.

As I approach my beetle-susceptible plants, I hold the ice-bucket below aggregations of beetles, which are then gently coaxed to take a nose-dive into the ice. Once they hit the ice, the beetles burrow downward just as they would if they had dropped to the soil. But, among the ice cubes, they quickly become icy cold and immobile. I find that I can work leisurely from plant to

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• Frozen treats

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plant, accumulating beetles as I go with very few escapes. Some, of course, miss the mouth of my container, but once through the orifice, their doom is sealed. I often collect a few hundred beetles this way before exhausting the readily available supply. I then dump the ice cubes and beetles in the chicken yard where they are consumed in short order.

What can I say? It is obvious that the chickens love their frozen beetle treats; for them I suppose it is much the same as ice cream for people on a warm summer night. But seriously, each beetle represents a little protein pill, highly nutritious for the chickens, and available at almost no cost, just the electricity to make a few ice cubes, and the time to gather the frozen treats while inspecting the garden. And, of course, a portion of everything fed to the chickens finds its way to the compost pile and then back to my gardens. So, rather than rapaciously devouring my plants, many Japanese beetles in my yard end up contributing to the health and vigor of both my chickens and my vegetables.

As the USDA-APHIS web site indicates, Japanese beetles are here to stay. Eradication is not feasible. And the same is true for many invasive exotic species, both plant and animal. For any pest, exotic or native, it is always advisable to find control measures that minimize environmental damage. For me and the Japanese beetles that infest my yard, the control method of choice is frozen beetle treats. Damage to my beetle-susceptible plants is lessened, and my chickens grow plump, outcomes that both my chickens and I find acceptable.

Future installments will focus on exotic green mulch and garden poles. Japanese beetle drawings from ohioline.osu.edu/hyg-fact/2000/2504.html. W. John Hayden, University of Richmond and VNPS Botany Chair

New garlic mustard threat discovered

Recently a friend sent me an article, "Garlic Mustard Casts a Pall on Forest," by Rex Springston from the May 18, 2006, *Richmond Times Dispatch*. It describes an additional serious threat to our deciduous forest. Many of you are familiar with the aggressive and invincible garlic mustard (*Alliaria petiolata* or *A. officinalis*) that has displaced much of the native ground cover, including our native wildflowers. It is an alien species from Europe, having been introduced in the United States around 1868. The *Atlas of Virginia* has the dubious honor of listing this member of the Brassicaceae (mustard family) first. It occurs in nearly all counties in Virginia, except for a few in the southwest.

You may have tried to eradicate this biennial pest in some of the infected areas, but in many cases this is not effective if seeds of the current year or past years have already fallen. Since these seeds may live for several years in the soil, it is necessary to repeat the task each year until no more seeds are left to germinate.

Species of the mustard family do not require an association with mycorrhizal (root) fungi but, instead, have anti-fungal properties. These fungi have not had time to adapt to garlic mustard that is a relative newcomer to the scene. Instead, the garlic mustard is killing these fungi which, in turn, cause the hardwood seedlings to grow much more slowly in areas infested with garlic mustard, as evidenced in laboratory experiments in Harvard. It would appear that over time this effect on the canopy tree seedlings may change the composition of the trees in the mixed deciduous forest that require the association with mycorrhizal fungi.

Article by Dorothy C. Bliss first appeared in the Blue Ridge Wildflower Society newsletter.